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RELATIVE INCOMES AND RATES OF RETURN FOR U.S. PHYSICIANS

DISCUSSION PAPER

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by

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ABSTRACT

Since 1967 the supply of physicians in the U.S. has been growing by more than three percent per annum. This, coupled with public insuror fee discounts, might have been expected to depress both the relative and absolute incomes of physicians in spite of growing insurance coverage and new technologies. Real incomes of physicians did decline at a 0.2 percent annual rate between 1967 and 1980, but this was apparently due to economy-wide events since the income trends for lawyers, dentists, and college graduates were virtually identical. Internal rates of return to undergraduate medical training remained high -- between 14 and 17 percent in 1980. Specialty training became more profitable for internists, general surgeons, and obstetricians/gynecologists (all with 10-15 percent rates of return), while pediatricians continued to suffer a financial loss. While Medicare and Medicaid fee discounts have been criticized as inequitable, the programs are also shown to provide a "hidden subsidy" to physicians during residency training, materially adding to rates of return.

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1. Introduction

In this paper we examine trends in the real incomes of United States physicians over time. We wish to determine whether any of the three pecuniary incentives for individuals to become physicians -- high absolute incomes, high incomes relative to other professional groups, and high rates of return to medical training -- have become less powerful. There are two reasons for supposing that this might have occurred. The first is the very rapid increase in the supply of physicians that has occurred in recent years. Over 1967-80 the ratio of active physicians to population rose 3.3 percent annually, with the number of internists and pediatricians going up at a particularly rapid rate. During the pre-Medicare/Medicaid period (1951-67), physicians per capita grew only 0.2 percent per year, so recent developments in physician supply represent a marked departure from earlier experience.

The second possible reason for a slower growth in incomes of physicians is the reduction, over time, in the proportion of the usual physician fee paid by the two major public insurance programs (Medicare and Medicaid). By the end of our study period Medicare discounted the usual fee for a follow-up office visit by 16 percent, while the Medicaid discount was 34 percent (Mitchell et al., 1981). This payment policy may have been to offset the large increase in demand brought about by these programs, which was putting severe pressure on government budgets.

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Whether these discounts were more or less than the bad debts physicians had been incurring on the poor and elderly prior to 1966 is uncertain, but that they greatly expanded overall demand (and income) is undebatable.

While a considerable literature[1] on the rate-of-return to medical education does exist, it is not suitable for time-series analysis due to incomparable (and limited) analysis years, varying comparison groups, and incompatible methodologies. The present work, which presents a consistent time series for rates of return to both undergraduate and specialized medical training, enables the hypothesis of declining income status for physicians to be systematically investigated over a much longer time period than heretofore. Moreover, data were collected to enable us to make adjustments for such frequently neglected factors as schooling subsidies and resident salaries, among other things.

The remainder of this paper is in five parts. In section 2, data on the incomes of physicians and three comparison groups -- lawyers, dentists and college graduates -- are presented for the 1951-80 period. In section 3, our methodology for estimating the rates of return to medical education, both undergraduate and specialized, is discussed, including key adjustments. In section 4, internal rates of return for medical, dental, and legal education are calculated. In section 5, rates of return to specialty training are presented for four types of primary care physicians: internists, general surgeons, obstetricians/gyne-

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[1]See, for example, Langwell (1982), Dresch (1981), Mennemeyer (1978), Sloan (1978), Feldman and Scheffler (1976), AMA (1973), and Lindsay (1973). These papers and other, earlier efforts on this topic were summarized in the longer report from which the present work is drawn. See Cromwell and Burstein, (1982, Ch. 5).

cologists, and pediatricians. The last section provides a brief discussion of the policy implications. Our overall conclusion is that the financial incentives for entering the medical profession suffered very little diminution over the study period, in spite of the rapid growth in the physicians per capita ratio and public insuror discounts. There is no evidence that this situation will change significantly in the near future.

2. Incomes of Physicians and Other Professionals

2.1 Data Sources

The primary data needed for the rate of return calculations concern the income and hours worked of physicians, lawyers, dentists, and college graduates.[2] The basic sources of income data are given in Table 1, but a few notes are required. The AMA survey data (as reported in the annual Profile of Medical Practice) overlap the Goldstein (1972) physician income series in 1969; it was assumed that the same proportional difference would have existed in earlier years and the Goldstein figures were adjusted accordingly. The pre-1968 figures on the mean income of physicians by specialty were obtained by taking median income data from Medical Economics and converting them to means by use of the assumption that the mean/median income ratio was the same for all specialists in any given year.

Because the AMA figures are based on self-reports, the accuracy of the income figures are open to question. While independent surveys (e.g., HCFA's annual physician survey) give very similar figures once sample differences are accounted for, underreporting of deferred income

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[2]The class of "college graduates" includes only those with no post-college schooling.

may still be a serious problem. To the extent this problem pervades all the reported incomes of professionals, no bias in internal rates of return comparisons obtains although absolute income trends may be understated. Given the very high rates of return shown below, the amount of underreporting is probably not too serious.

Data on annual hours of work (post-1968 only) for physicians, lawyers, and dentists were taken from the same sources as the income data. Comparison figures for college graduates were obtained by use of the formula reported by Kniesner (1976):

$$\begin{aligned} HOURS = {} & 2574.3 - 111.2(\text{Real Hourly Wage}) + 27.3(\text{Years of Education}) \\ & + 19.4(\text{Wife's Wage}) - 7.7(\text{Age}) + 6.9(\text{Years at Current Job}) \\ & - 203.9(\text{Race}) \end{aligned}$$

In applying this formula, the hourly wage was taken from the previous year (assumed unchanged 1978-79), a non-working spouse was assumed, and the other variables were set to appropriate values for the average college graduate of the year in question. (Race represented the proportion of non-white graduates.)

For the adjustments to the basic rate of return figures, a variety of sources were used. Data on medical school tuition came from the annual reports on medical education found in the Journal of the American Medical Association, while the data on medical school grants came from this source and from Feldman (1980). Goldstein (1972) supplied data on stipends for interns and residents over the 1965-69 period, and Feldman (1980) for 1977, and Hough (1981) for 1974-79. A constant rate of annual real growth over 1970-74 was assumed.

2.2 Income Trends

Table 1 shows that the annual nominal net incomes of physicians rose from $13,432 to $85,600 over the period 1951-80, an increase of 539%. Even after allowing for inflation, the total real increase was 101.4%, or 2.4% per year. In the last year for which comparable data exist, physicians did very well in comparison with lawyers, dentists, and male college graduates. In fact, physicians' mean earnings were more than double those of lawyers, and triple those of male college graduates, while exceeding those of dentists by more than one-third. This superiority of physician incomes over relevant comparison groups holds for every year for which data exist.

An interesting question is whether any trend unfavorable to physicians developed at some point during the study period. Table 2 contains the information necessary to investigate this possibility. In the 1951-67 pre-Medicare/Medicaid period, the real rate of growth of physicians' incomes was 4.7 percent per year. The post-program rate of growth, however, was actually negative, at -0.2 percent per year. Thus, as high as the growth in nominal physician incomes was, it failed to keep pace with inflation.

Can this reversal in the extremely favorable earnings trend of the pre-program period be ascribed to changes in supply/demand conditions specific to the market for medical services? This is doubtful for two reasons:

- Physician incomes continued to rise through 1972, with the decline in real earnings for the entire post-program period due to post-1973 trends; and
- All other professional and educational comparison groups for which we have data show

similar income trends over time, in spite of being completely unaffected by Medicare and Medicaid.

Both of these patterns are clear in Table 2 and Figure 1. In the latter, the solid vertical line which indicates the start of Medicare and Medicaid is not associated with any break in the earlier rising income trend. Over the first part of the post-program period (1967-76), average physician income increased 1.1 percent per year. The second part of the post-program period (1972-80), on the other hand, saw an 0.8 percent per year real income decline. All three of our comparison groups -- lawyers, dentists, and male college graduates -- also had real income declines between 1972 and 1980. (The income of high school graduates showed a similar pattern, with a 2.1 percent annual rate of increase followed by a -0.8 percent rate of decline.) The all-inclusive nature of the fall in real income indicates that some economy-wide phenomenon -- probably the high and accelerating rate of inflation -- was responsible for much, if not all, of the post-program decline in real physician incomes.

The relative income situation is also interesting. Physician earnings were virtually constant between 1967-80 relative to the three comparison groups. The result vis-a-vis dentists is surprising, since the growth is dental insurance coverage was extremely rapid during this period[3] while the supply of dentists was growing relatively more slowly (0.6 percent annual increase over the 1967-80 period versus 3.3 percent for physicians). It is quite possible that other, offsetting factors like the spread of fluoridization negated dentistry's positive insurance effects, producing demand trends comparable with those of physicians experiencing slower

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[3]The percentage of the U.S. population with private dental insurance rose from 3 to 23 percent 1967-77.

insurance growth but more demand-inducing technical change, e.g., endoscopies, radionucleide and CAT scanning. There is nothing overt in the net income data that shows any impact of physician supply increases or deeper public insurance fee discounts on average physician incomes. This is a serious matter if it means that private financial incentives will not retard the current trend toward physician oversupply. Alternatively, if insurance and technology trends simply overwhelmed burgeoning supply effects in 1970s, then the direct and indirect demand controls so prevalent in the 1980s (e.g., higher deductibles and copays) could have a material effect on future supplies.

It has been demonstrated above that physicians are maintaining their relative and absolute income superiority over a sample of other professionals. Another and perhaps more important influence on the decision of potential new practitioners to enter the medical profession is the rate of financial return. This aspect of long-run physician supply is considered below.

3. Methodology for Calculating Rates of Return

As noted above, it is extremely difficult to draw any conclusions concerning rates of return to medical training from the existing literature. Years of analysis are limited in the individual studies, and no two estimates are comparable. The present paper is unique in that a uniform approach is used to evaluate rates of return, over a substantial period of time.

3.1 The basic formula

Our basic rate-of-return formula is taken from Sloan and Feldman (1978). Suppose that we wish to compute the rate of return for group 2,

which differs from the base group 1 primarily in that the former has undertaken an additional period of training. The present value V_1 of the annual income Y_1 earned by group 1 (assuming that the income flow continues forever) is:

$$V_1 = \int_{S_1}^{\infty} Y_1 \, e^{-r_1 t} \, dt \qquad (1)$$

where S_1 is the first year of the income flow and r_1 is the appropriate discount rate for this group. Integrating this formula gives

$$V_1 = \frac{Y_1}{r_1} \cdot e^{-r_1 S_1} \quad . \qquad (2)$$

If group 2 spends more time in training than group one, we can find the internal rate of return r to that investment by finding the discount rate which equates V_1 to V_2. This gives us

$$\frac{Y_1}{r} \cdot e^{-rS_1} = \frac{Y_2}{r} \cdot e^{-rS_2} \qquad (3)$$

which implies that

$$\frac{Y_2}{Y_1} = e^{r(S_2 - S_1)} \quad . \qquad (4)$$

Since, by definition, annual earnings Y equals the hourly wage W times the number of hours worked per year L for each group, and assuming non-pecuniary benefits are equal, our unadjusted internal rate of return r_u becomes:

$$r_u = \frac{\ln(W_2/W_1) + \ln(L_2/L_1)}{S_2 - S_1} \quad . \qquad (5)$$

Equation (5) is, of course, based on differences in annual earnings. If we assume that any gap between L_1 and L_2 is induced by differences

in the hourly wage and not any non-pecuniary benefits, then an equally valid formula would be:

$$r_a = \frac{\ln(W_2/W_1)}{S_2 - S_1} \quad , \tag{6}$$

where r_a is interpreted as the hours-adjusted internal rate of return. If leisure has some value, and certain assumptions (see below) are satisfied, then the true internal rate of return r to the additional training obtained by group 2 will lie somewhere between this hours-adjusted rate r_a and r_u.

To demonstrate this, it is useful to make the additional assumption that the supply curve of labor is the same for the two groups and not backward-bending. This implies that by voluntary choice, L_2 L_1 in all relevant situations, ceteris paribus.[4] For this extra labor time, group 2 will receive $W_2(L_2 - L_1)$ in additional earnings. However, not all of this earnings increment can be considered to be a true return. To obtain the extra money, group 2 individuals must give up $(L_2 - L_1)$ hours of leisure. The net return to the extra work effort of group 2 is equal to the monetary return minus the value of the foregone leisure. Therefore, rates of return based on annual earnings unadjusted for differences in hours (e.g., r_u) will overstate the actual benefit of belonging to group 2. Rates of return based on hourly earnings alone (e.g., r_a) will understate the true rate of return, however, since some positive benefit must accrue to group 2 for the extra hours worked, for otherwise they would not have worked longer. Thus, if our basic formulas are correct, we may conclude that $r_a < r < r_u$.

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[4]We are assuming that the extra training has some monetary value.

3.2 Adjustments

The rate of return formulas (5) and (6) are based on a number of implicit assumptions which would tend to cause inaccuracies when applied to the earnings of physicians. These assumptions include:

- A constant length of physician training;
- An equal (and infinite) work life for all groups;
- Zero out-of-pocket educational costs for post-college training;
- Zero earnings for medical residents;
- Similar earnings/experience profiles for all groups.

We made corrections for the first four of these, using the methods described below. We were unable to deal with the last item, so our rate of return estimates will be slight overestimates since the lifetime earnings advantage of physicians is concentrated somewhat in their later years.

Finite Working Lifetimes

The first adjustment made to the basic formulas deals with the fact that workers do retire at a finite age. This means that the present value formula (1) represents an overestimate of actual discounted earnings. The error will be greater for those professions with the shortest working lives (or longest training). Our response was to reduce the Y_i employed in the rate of return formulas by a factor of V_i'/V_i, where V_i' is retirement-adjusted present value of lifetime earnings, truncated at a fixed retirement age of 65 in (1). A discount rate of ten percent was assumed. Perhaps contrary to a priori expectations, V_i'/V_i varied from only .967 (physicians 1978) to .986 (college graduates). Potential earnings past age 65 are simply not of

much importance to decisions made at age 21, due to the operation of the discount rate.[5] This adjustment thus reduced the calculated rate of return to medical education by a maximum of 0.3 percentage points -- an insignificant change as we shall see.

This result is quite sensitive to the time discount rate employed. At a five percent rate, assuming a fixed, age 65 retirement rate for all occupations reduces the return to medical education by 2.3 percentage points. Unlike many college graduates, however, physicians enjoy a longer, more lucrative career which is ignored in using a 65 age limit. According to the latest AMA figures (AMA, 1984), 16.2% of GPs were still in active practice over age 65, working 45 hours per week, and enjoying a net income of $64,300 (compared to $116,500 for those in the peak earnings years, 46-55). Without knowing exactly the true rate of time discount and recognizing the unequal retirement ages of college graduates and physicians, all we can say is that the true adjustment probably lies somewhere between .3 and 2.3 percentage points.

Rising Medical School Costs

Even with this adjustment, our rate-of-return formula does not take into account the out-of-pocket costs for more years of formal schooling. It is well known that medical school tuition rose sharply during the 1970's, from an average of $1,379 in 1970 to $5,287 in 1980 (Hadley, 1980; J.A.M.A., 1983). Less well known, however, is the extraordinary rise in grants to medical students that took place over 1968-71 (Feldman,

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[5]This same point applies to the longer-than-average working lives of physicians; the extra earnings from additional time in the labor force occur too far in the future to have any impact. A full year of extra earnings at age 66, for example, is discounted by a factor of 74 (from the viewpoint of a 21 year old with a ten percent discount rate).

1980), which caused a sharp decline in net annual tuition per medical student from approximately $2,200 to $1,700 per year (real 1967 dollars). The 1967 peak in real net tuition, in fact, was not surpassed until 1977, as the increase in grants almost exactly matched the rise in tuition over the 1971-75 period. To calculate the impact of these offsetting changes, the sum of the average net tuition over the four years of medical school was divided by the present value of total earnings for physicians to get a proportional reduction in the income figure to be used in the rate of return formula. It was determined that net lifetime income was reduced approximately two percent when cost of education was taken into account, resulting in a decline in the rate of return of close to 0.5 percentage points.

Rising Earnings of Medical Residents

Finally, the substantial growth in earnings of physicians during their residency period ($15,000 per year, median, by 1979) were taken into account in similar fashion. The large increase in these earnings coupled with their timing early in a physician's career made this an important factor. Calculated lifetime discounted earnings increased by between 2.6 to 8.8 percent under this adjustment at its peak (1977), with the specialties requiring longer training obviously benefiting the most from higher residency salaries. The average rate of return for all physicians relative to college students increased by 0.8 percentage points, while the rate of return for general surgeons (with the longest training/residency period) relative to general practitioners increased by 1.5 percentage points in 1977.

Net Impact of Adjustments

The approximate net impacts of the three adjustments considered here were a 0.8 percentage point decrease in the calculated rate of return to a basic medical education, and a maximum 0.7 percentage point increase in the rate of return to specialized medical training. Both of these rates were lowered by the adjustments for finite working life (-0.3) and out-of-pocket costs of in-class training (-0.5), while the adjustment for the earnings of residents (+1.5) applied to the rate of return for specialists only.

4. Rates of Return to Physicians' Post-College Training

To compute the rate of return to post-college training, the incomes of physicians, dentists, and lawyers were compared to those of college graduates. This is appropriate for dentists and lawyers since the decision to enter a professional school takes effect at the end of college, and no further decisions concerning investment in formal education must be made. For physicians, however, the choice of specialty made at the end of professional school vitally affects their future income and rate of return, as we shall show. Therefore, to calculate the rate of return to the first post-college training decision, i.e., to become a "doctor", the impact of physician specialization must be deleted. This is achieved by computing rates of return for the group of physicians that did not undertake specialty training — the general practitioners. While the rate of return to all physician training was also calculated, it is the rate of return for general practitioners which is most comparable to the figures given for dentists and lawyers.

Our results are given in Table 3. They indicate that physicians, dentists, and lawyers all earned a positive return on their post-college training. The adjusted rate of return for general practitioners was between 12.1 and 14.5 percent, and the unadjusted rate ranged from 16.3 to 19.0 percent. In absolute terms, this was surely more than adequate to attract new entrants into the profession of medicine. In relative terms, the general practitioner's rate was far superior to that of lawyers, and approximately equal to that of dentists. There is no indication of any major trend in the rate of return to initial post-college training for any of the professions. This is contrary to what we would expect if medical supply/demand factors had reduced physician incomes.

The lower figures for the all-physician rate of return deserves some discussion. This pattern is almost certainly due to the movement toward increased specialization in the medical profession. If the marginal rate of return to medical education declines with additional years of training (which is in accord with both investment theory and the figures presented in the next section), then increasing specialization must bring down the average rate of return for all physicians. It should be noted, however, that this average rate of return will have no impact on either the medical school or the specialization decision, which are affected only by the marginal return rates.

Also note the difference between unadjusted and adjusted rates. The latter are lower, reflecting the longer average work weeks of physicians. On average the basic return to medical school is reduced about four points, or roughly 25%. This differential appears to be narrowing markedly over time, implying relative declines in physician work effort compared to other professionals. While consistent with the

increase in the supply of physicians, reduced work effort per physician makes the ability of the medical profession to keep their incomes up to previous standards even more difficult to explain unless major changes in practice organization and technology have improved their overall productivity.

5. Rates of Return to Some Important Specialties

The groups chosen for study in this section are the general surgeons, obstetricians/gynecologists, internists, and pediatricians. For calculating the rates of return to these specialists, general practitioners constitute our reference group. This is appropriate because the decision to enter a medical specialty can be taken only at the end of undergraduate medical training. Based on board-certification requirements, we assumed that general surgeons needed five years of post-medical school training, obstetricians/gynecologists four, and internists and pediatricians three.[6] The results are given in Table 4. Except for the pediatricians, specialization seems to have been highly profitable in the most recent years listed. Averaging the 1977-80 figures, internists received a rate of return of 10.6-11.3%, general surgeons 11.0-13.1%, and obstetricians 12.7-14.5%, while pediatricians suffered an income loss.[7] Going back to the years immediately following the introduction of Medicare and Medicaid (1967-69), we observe

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[6]These figures were obtained from Wechsler (1976), Table 1. Feldman (1980) asserts that four years is a better estimate for a "typical" internist, but he agrees with the other figures. The one year graduate medical education requirement for licensure has been ignored for GPs.

[7]The first number given for each specialty is the average of the 1977 and 1980 adjusted rates of return, and the second is the average of the unadjusted rates for the same years. It is not possible to exactly quantify any negative rate of return using the methods of this paper.

uniformly lower rates; internists received a rate of return between 9.6 and 6.5%, general surgeons 6.5-8.6%, obstetricians 7.7-8.0%, and pediatricians a negative return. Thus, except for pediatrics, the financial incentive to enter a specialty held up well in the post-program period. In fact, the rate of return to internists, general surgeons, and obstetricians rose by 3.9, 4.5, and 5.8 percentage points, respectively, during this time. These increases represent a substantial fraction of the original return rates.

It is interesting to note that the increased rates of return for the three profitable specialties cited here were not matched by an equivalent increase in the returns to general practitioners. Between 1967-69 and 1979-80 the GP rate of return rose by only 0.3 percentage points. Continuation of this trend for another decade would remove the general practitioner/specialty return rate differential completely. The movement toward increasing specialization has thus received added impetus from the private financial considerations of medical students. Pediatrics is obviously the exception; any individual entering this specialty must be strongly influenced by non-monetary considerations.

6. Conclusion

The conventional picture of medicine as a financially attractive profession is strongly confirmed by this study. The difference in absolute incomes between physicians, on the one hand, and dentists and lawyers on the other was 35 and 139 percent, respectively, in 1978-80; this advantage will unquestionably remain large in the forseeable future.

The internal rate of return to basic medical training exceeded 12 percent in every post-Medicare/Medicaid year, being approximately equal

to that for dental education and roughly double the rate for law school. Medical specialization in the areas of internal medicine, general surgery, and obstetrics/gynecology was also highly profitable, with the rates of return increasing substantially since the late 1960s. Pediatrics was the sole exception to this general picture of financial success, with declining birth rates and limited insurance perhaps being responsible for the negative rate of return to training in this specialty. (Their patients are ineligible for Medicare, and other insurors generally do not cover routine child care.)

It is perhaps somewhat surprising that rates of return to medical training managed to stay so high in the face of (a) increasing fee discounts for public insurors, (b) rapidly growing physician supply, and (c) rising tuition costs. The first of these may be more apparent than real if physicians manipulate the "usual" fees on which these discounts are calculated. Cromwell and Burstein (1982), for example, have shown that physicians only rarely receive full payment of their usual charge while Lee and Hadley (1981) demonstrate the positive relationship between "usuals" and usual-customary-reasonable payment methods as part of an revenue-maximizing game. Second, burgeoning supply could have been offset by increasing intensity per visit, which also is well documented for recent years (Cromwell, et al., 1982; Freeland and Schendler, 1981). The third was shown to be counteracted by rising financial support for medical students, so that no significant increase in net medical school tuition was recorded over the 1967-80 period. The increase in the stipends of medical residents was a fourth factor, which was working to increase rates of return for specialty training substantially.

One policy conclusion to emerge from the analysis is that programs designed to reduce total medical expenditures by limiting physician

incomes can be enacted without serious impact on the financial attractiveness of this profession. Rates of return to medicine are not only high on an absolute basis, but equal or exceed those of other forms of post-graduate training. While non-pecuniary factors could explain the systematically higher returns (e.g., a distaste for the "sight of blood", the long, arduous schooling), institutional rigidities probably explain the larger part of the differential. The ability of the profession to influence medical school admissions and licensure exams, as well as their resistance to legal delegation of more routine tasks to other health professionals, has certainly helped perpetuate their economic advantage (Sloan, 1970; Frech, 1974; Kessel, 1970).

Another conclusion points to the "hidden subsidy" afforded physicians by all insurors, including Medicare and Medicaid. Increased insurance coverage has enhanced returns not only by raising the demand of the elderly and the poor, but by increasing the remuneration of residents via cost-based reimbursement of teaching hospitals. Since only specialists in training receive the benefits of this change, this could be one of the important factors behind the enhanced rates of return for specialty training. Given the enormous financial advantage to a medical education, insurors might reconsider their policy of including resident salaries as a fully allowable expense.

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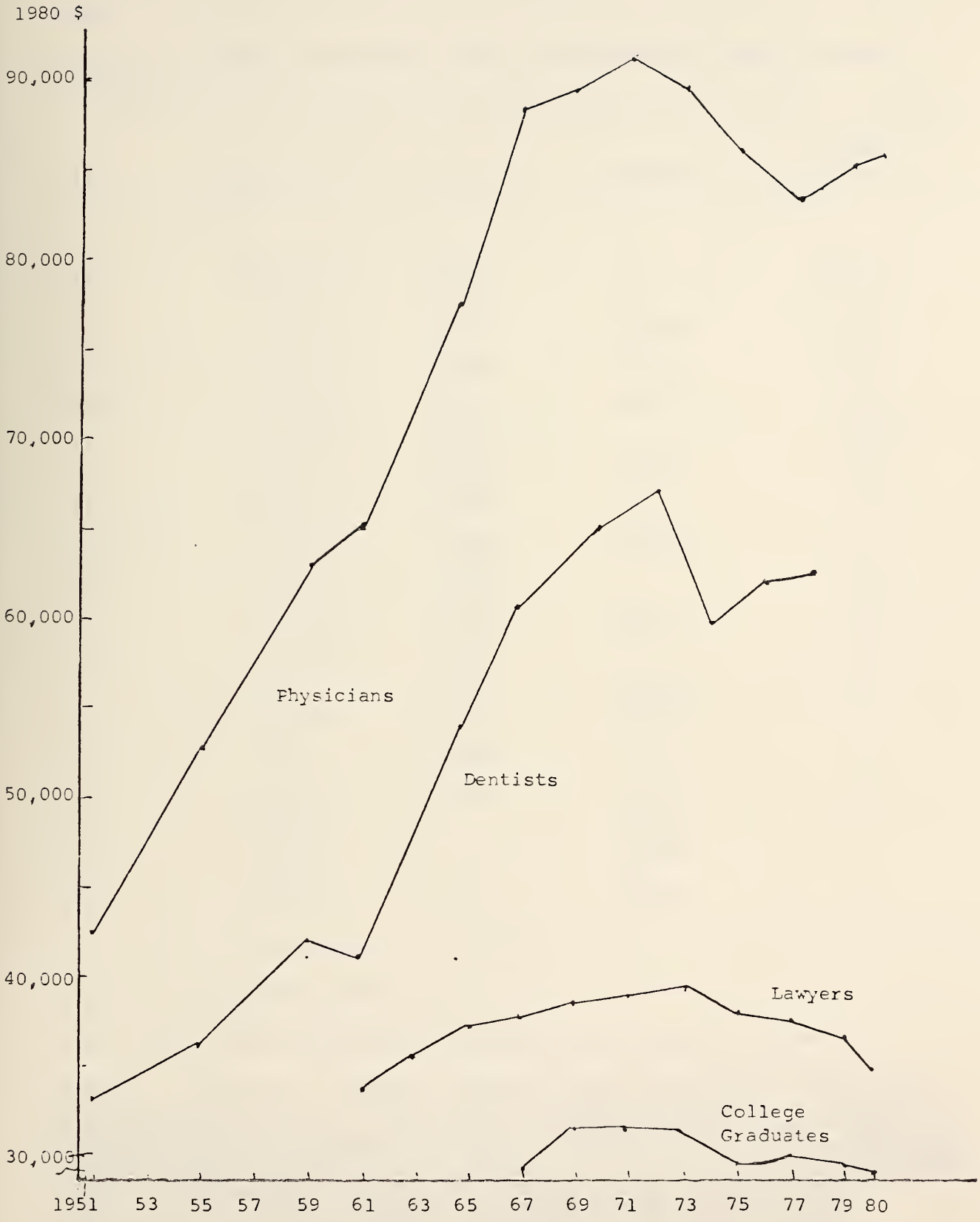

Figure 1: Real Professional Incomes, 1951-1980

TABLE 1

PHYSICIAN AND OTHER PROFESSIONAL AVERAGE NET INCOMES,[b], 1951-80, CURRENT DOLLARS

Period	Physicians	Lawyers	Dentists	College Graduates[a]
1980	$85,600	$35,819	--	$28,306
1979	78,400	32,771	--	26,300
1978	65,500	30,093	$48,363	24,529
1977	61,200	27,583	--	22,585
1976	59,500	26,170	42,035	20,896
1975	56,400	24,665	--	19,684
1974	52,000	22,923	35,698	18,011
1973	48,600	21,666	--	17,518
1972	47,200	20,382	34,000	16,972
1971	45,300	19,210	--	15,565
1970	41,800	18,296	30,770	14,675
1969	39,727	17,083	--	14,670
1967	35,729	15,276	24,740	11,973
1965	29,589	14,233	20,698	--
1963	--	13,223	--	--
1961	23,659	12,249	16,020	--
1959	22,239	--	14,849	--
1955	17,215	--	12,480	--
1951	13,432	--	10,388	--

[a]Males over 25, working full time.

[b]Gross revenue less professional expenses before payment of income tax.

SOURCES: Physicians -- 1969-80: American Medical Association, Profile of Medical Practice; 1955-67: M.S. Goldstein, Income of Physicians Osteopaths, and Dentists from Professional Practice, 1965-69, Table 16; 1951: Survey of Current Business. Lawyers -- U.S. Bureau of Labor Statistics, National Survey of Professional, Administrative, Technical, and Clerical Pay (Bulletins 2/45 (1982) and 2004 (1978)). Dentists -- Journal of the American Dental Association. College Graduates -- U.S. Bureau of the Census, Current Population Reports, Series P-60: Current Income, Education, and Age.

TABLE 2

GROWTH RATES IN REAL PROFESSIONAL INCOMES, SELECTED SUB-PERIODS

Period	Physicians	Lawyers	Dentists	College Graduates
Total				
1951-80	2.3%	--	2.4%[a]	--
Pre- and Post Program				
1951-67	4.7	--	3.9	--
1967-80	-0.2	-0.3	0.0[a]	-0.1
Sub-Periods				
1972-80	-0.8	-1.2	-1.5[a]	-1.4
1967-72	1.1	1.3	1.8	2.5
1961-67	5.2	1.9	5.6	--
1951-61	4.2	--	2.9	--

[a]Last data year is 1978.

TABLE 3

INTERNAL RATES OF RETURN*, 1967-80

Year	All Physicians		General Practitioners		Dentists		Lawyers[a]
	r_a	r_u	r_a	r_u	r_a	r_u	r_u
1980	12.1%	14.0%	14.2%	16.7%	--	--	7.2%
1979	11.6	13.7	14.5	17.2	--	--	7.2
1978	11.0	13.2	13.0	16.3	16.3%	14.9%	6.8
1977	10.2	12.6	13.3	17.0	--	--	6.8
1976	10.5	13.3	12.4	16.4	15.8	14.9	7.1
1975	11.6	14.2	12.3	16.7	--	--	7.1
1974	12.0	14.3	14.5	18.2	14.9	14.8	7.1
1973	10.8	13.8	12.5	17.4	--	--	6.7
1972	10.7	14.2	12.2	17.8	14.4	14.8	5.7
1971	11.6	15.1	13.2	18.9	--	--	6.6
1970	11.8	14.7	12.1	16.8	16.1	15.7	7.0
1969	11.3	14.3	12.5	17.2	--	--	4.7
1967	11.7	15.5	13.2	19.0	13.5	15.4	7.7

*r_a is the hours adjusted rate of return, and r_u is the unadjusted rate.

[a]No r_a was calculated for lawyers due to lack of data on hours of work for this group.

TABLE 4

INTERNAL RATES OF RETURN TO SPECIALTY TRAINING*

Year	Internists		General Surgeons		OB-GYN		Pediatricians	
	r_a	r_u	r_a	r_u	r_a	r_u	r_u	r_a
1980	9.8%	11.3	13.6	11.3	14.8	14.0	--	--
1979	11.4	11.2	12.5	10.6	14.2	11.4	--	--
1978	8.9	6.3	11.9	10.6	9.5	8.4	--	--
1977	10.3	6.9	10.8	9.4	11.5	10.0	--	--
1976	13.3	9.6	12.5	11.5	13.0	10.3	0.3	3.0
1975	12.5	11.3	11.6	11.2	12.1	10.5	--	2.3
1974	8.0	6.1	9.1	8.1	11.7	9.7	--	--
1973	7.5	6.3	9.2	10.2	10.2	9.2	--	2.0
1972	4.9	4.2	8.8	9.1	9.3	7.6	--	--
1971	4.6	4.3	8.8	9.1	9.1	6.3	--	--
1970	9.3	10.8	11.2	11.2	11.8	10.0	2.4	2.8
1969	4.7	7.1	9.7	9.1	8.4	7.3	--	--
1967	8.3	12.0	7.4	6.8	7.5	8.0	1.6	--
1955	--	NA	6.2	NA	10.0	NA	0.6	NA
1951	--	NA	3.7	NA	4.9	NA	4.1	NA

*r_a is the hours adjusted rate of return, and r_u is the unadjusted rate.
"--" indicates a negative rate of return.